

0059586

SAF-B03-014
118-C-4 Horizontal Rod Cave, Waste
Characterization Sampling
FINAL DATA PACKAGE

FAX RESULTS TO:

Rikki Thoren

372-2183

N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Rikki Thoren

X9-05

RT 5/5/03
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG H2151

SAF-B03-014

Rad only ☒ Chem only Rad & Chem

☒ Complete Partial

RECEIVED
MAY 30 2003

EDMC



Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

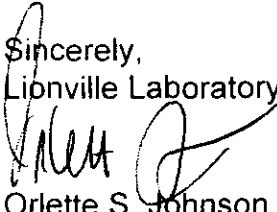
Subject: Contract No. 630
Analytical Data Package

Dear Ms. Kessner:

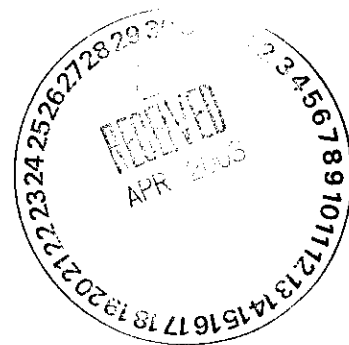
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0304L131
SDG #	H2151
SAF #	B03-014
Date Received	4-8-03
# Samples	2
Matrix	Other Solid
Volatiles	X
Semivolatiles	X
Pest/PCB	X
DRO/KRO/GRO	
GC Alcohols	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager





Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B03-014 112151

DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00L30	001	SO	03LVH077	04/02/03	N/A	04/09/03
J00L30	001 R1	SO	03LVH077	04/02/03	N/A	04/09/03
J00L32	002	SO	03LVH077	04/02/03	N/A	04/09/03
J00L32	002 MS	SO	03LVH077	04/02/03	N/A	04/09/03
J00L32	002 MSD	SO	03LVH077	04/02/03	N/A	04/09/03

LAB QC:

VELKOG	MB1	S	03LVH077	N/A	N/A	04/09/03
VELKOG	MB1 BS	S	03LVH077	N/A	N/A	04/09/03



Client: TNU-HANFORD B03-014

LVL #: 0304L131

SDG/SAF # H2151/B03-014

W.O. #: 11343-606-001-9999-00

Date Received: 04-08-2003

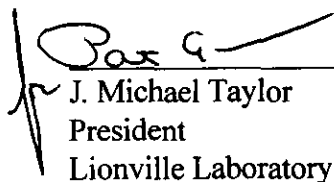
GC/MS VOLATILE

Two (2) solid samples were collected on 04-02-2003.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL volatile target compounds on 04-09-2003.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were analyzed within holding time.
3. Non-target compounds were detected in the samples.
4. Eight (8) of twenty-one (21) surrogate recoveries were outside EPA QC limits. The analysis of associated matrix spike samples fulfills the reanalysis requirement of sample J00L32. Other out of criteria sample was reanalyzed on 04-09-2003 and reported.
5. One (1) of ten (10) matrix spike recoveries was outside EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. Internal standard area criteria were not met for the samples. The analysis of associated matrix spike samples fulfills the reanalysis requirement of sample J00L32. Other out of criteria sample was reanalyzed on 04-09-2003 and reported.
8. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


J. Michael Taylor
President
Lionville Laboratory Incorporated

04-11-03
Date

son\group\data\voa\tnu-hanford\0304-131.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 16 pages.

GLOSSARY

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

mmz\10-94\gloss.bna



TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP - Missed Peak: manually added peak not found by automatic quan program.
- PA - Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 04/10/03 11:44

RFW Batch Number: 0304L131

Client: TNU-HANFORD B03-014

Work Order: 11343606001 Page: 1a

C

Cust ID:		J00L30	J00L30	J00L32	J00L32	J00L32	VBLKOG
Sample RFW#:		001	001	002	002 MS	002 MSD	03LVH077-MB1
Information Matrix:		SOLID	SOLID	SOLID	SOLID	SOLID	SOIL
D.F.:		1.14	1.14	1.14	1.16	1.14	1.00
Units:		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
REPREP							
Toluene-d8		131 %	148 * %	148 * %	140 %	145 * %	101 %
Surrogate Bromofluorobenzene		62 * %	50 * %	57 * %	54 * %	58 * %	88 %
Recovery 1,2-Dichloroethane-d4		103 %	145 %	133 %	141 %	148 %	77 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Chloromethane		14 U	14 U	14 U	14 U	14 U	10 U
Bromomethane		14 U	14 U	14 U	14 U	14 U	10 U
Vinyl Chloride		14 U	14 U	14 U	14 U	14 U	10 U
Chloroethane		14 U	14 U	14 U	14 U	14 U	10 U
Methylene Chloride		7 U	15	3 J	8	4 J	5 U
Acetone		25	65	25	46	38	10 U
Carbon Disulfide		7 U	7 U	7 U	7 U	7 U	5 U
1,1-Dichloroethene		7 U	7 U	7 U	87 %	87 %	5 U
1,1-Dichloroethane		7 U	7 U	7 U	7 U	7 U	5 U
1,2-Dichloroethene (total)		7 U	7 U	7 U	7 U	7 U	5 U
Chloroform		7 U	7 U	7 U	7 U	7 U	5 U
1,2-Dichloroethane		7 U	7 U	7 U	7 U	7 U	5 U
2-Butanone		14 U	14 U	14 U	14 U	14 U	10 U
1,1,1-Trichloroethane		7 U	7 U	7 U	7 U	7 U	5 U
Carbon Tetrachloride		7 U	7 U	7 U	7 U	7 U	5 U
Bromodichloromethane		7 U	7 U	7 U	7 U	7 U	5 U
1,2-Dichloropropane		7 U	7 U	7 U	7 U	7 U	5 U
cis-1,3-Dichloropropene		7 U	7 U	7 U	7 U	7 U	5 U
Trichloroethene		7 U	7 U	7 U	84 %	82 %	5 U
Dibromochloromethane		7 U	7 U	7 U	7 U	7 U	5 U
1,1,2-Trichloroethane		7 U	7 U	7 U	7 U	7 U	5 U
Benzene		7 U	7 U	7 U	117 %	117 %	5 U
Trans-1,3-Dichloropropene		7 U	7 U	7 U	7 U	7 U	5 U
Bromoform		7 U	7 U	7 U	7 U	7 U	5 U
4-Methyl-2-pentanone		14 U	14 U	14 U	14 U	14 U	10 U
2-Hexanone		14 U	14 U	14 U	14 U	14 U	10 U
Tetrachloroethene		7 U	7 U	7 U	7 U	7 U	5 U
1,1,2,2-Tetrachloroethane		7 U	7 U	7 U	7 U	7 U	5 U
Toluene		7 U	3 J	3 J	138 %	140 * %	5 U

* = Outside of EPA CLP QC limits.

Cust ID: J00L30 J00L30 J00L32 J00L32 J00L32 VBLKOG

RFW#: 001 001 002 002 MS 002 MSD 03LVH077-MB1

REPREP

Chlorobenzene	7 U	7 U	7 U	107 %	107 %	5 U
Ethylbenzene	7 U	7 U	7 U	7 U	7 U	5 U
Styrene	7 U	7 U	7 U	7 U	7 U	5 U
Xylene (total)	7 U	7 U	7 U	7 U	7 U	5 U

*= Outside of EPA CLP QC limits.

Volatiles by GC/MS, HSL List

Client: TNU-HANFORD B03-014

Work Order: 11343606001 Page: 2a

Sample	RFW#:	03LVH077-MB1
Information	Matrix:	SOIL
	D.F.:	1.00
	Units:	ug/Kg

[illegible]

*= Outside of EPA CLP QC limits.

Cust ID: VBLKOG BS

RFW#: 03LVH077-MB1

Chlorobenzene	104	%
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J00L30

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____

SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOLID

Lab Sample ID: 0304L131-001

Sample wt/vol: 4.40 (g/mL) G

Lab File ID: h040909

Level: (low/med) LOW

Date Received: 04/08/03

% Moisture: not dec. 19

Date Analyzed: 04/09/03

Column: (pack/cap) CAP

Dilution Factor: 1.14

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	18.234	20	J

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J00L30RE

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____

SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOLID

Lab Sample ID: 0304L131-001

Sample wt/vol: 4.40 (g/mL) G

Lab File ID: h040918

Level: (low/med) LOW

Date Received: 04/08/03

% Moisture: not dec. 19

Date Analyzed: 04/09/03

Column: (pack/cap) CAP

Dilution Factor: 1.14

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	18.304	50	J

11

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J00L32

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____

SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOLID

Lab Sample ID: 0304L131-002

Sample wt/vol: 4.40 (g/mL) G

Lab File ID: h040910

Level: (low/med) LOW

Date Received: 04/08/03

% Moisture: not dec. 17

Date Analyzed: 04/09/03

Column: (pack/cap) CAP

Dilution Factor: 1.14

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	SILOXANE	18.291	10	J
2.	SILOXANE	22.240	9	J

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKOG

Lab Name: Lionville Labs, Inc. Contract: 11343606001

Lab Code: Lionvi Case No.: _____

SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL

Lab Sample ID: 03LVH077-MB1

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: h040907

Level: (low/med) LOW

Date Received: 04/09/03

% Moisture: not dec. 0

Date Analyzed: 04/09/03

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Elliott et al.

[illegible]

Bechtel Hanford Inc.				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Collector <u>Fahlberg</u>		Company Contact Rikki Thoren		Telephone No. 521-8003		Project Coordinator KESSNER, JH	
Project Designation 118-C-4 Horizontal Rod Cave, Waste Characterization Samp		Sampling Location 118-C-4 Horizontal Rod Cave		SAF No. B03-014		Price Code 9A Air Quality <input type="checkbox"/>	
Ice Chest No. <u>ERC-01-021</u>		Field Logbook No. <u>EL 1512-4</u>		COA R118CD200C		Method of Shipment Fed Ex	
Shipped To <u>TMA/RECRA</u>		Offsite Property No. <u>A030179</u>		Bill of Lading/Air Bill No. <u>SEE 057C</u>			
POSSIBLE SAMPLE HAZARDS/REMARKS <u>Potentially Radioactive</u> <u>tie to J00L31</u> <u>Special Handling and/or Storage</u> <u>cool 4c</u>				Preservation	<u>B</u> Cool 4C	<u>A</u> Cool 4C	<u>C</u> None
				Type of Container	<u>aG</u>	<u>aG</u>	<u>aG</u>
				No. of Container(s)	<u>1</u>	<u>1</u>	<u>1</u>
				Volume	<u>60mL</u>	<u>60mL</u>	<u>60mL</u> <u>4.203</u> <u>120mL</u>
SAMPLE ANALYSIS				PCBs - 8082; Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (1) in Special Instructions.	
Sample No.	Matrix *	Sample Date	Sample Time				
<u>J00L30</u>	<u>OTHER SOLID</u>	<u>4.2.03</u>	<u>0820</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>J00L32</u>	<u>OTHER SOLID</u>	<u>4.2.03</u>	<u>0820</u>	<u>X</u>	<u>X</u>	<u>X</u>	
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time <u>1000</u>		Received By/Stored In		Date/Time <u>1000</u>	
<u>R. Fahlberg</u>		<u>4.2.03</u>		<u>SA 3728</u>		<u>4.2.03</u>	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>REF 3A 3728</u>		<u>4703 1030</u>		<u>NOBLE</u>		<u>4703 1030</u>	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>NOBLE</u>		<u>4703 1030</u>		<u>FED EX</u>			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>FED EX</u>		<u>4/8/03 1005</u>		<u>J. Fahlberg</u>		<u>4/8/03 1005</u>	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
LABORATORY SECTION				Received By _____ Title _____ Date/Time _____			
FINAL SAMPLE DISPOSITION				Disposal Method _____ Disposed By _____ Date/Time _____			

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Metals by ICP (TCLP) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury (TCLP) - 1311/7470

Personnel not available to
relinquish samples from the 3728
Ref # SA on 4.12.03

Matrix *

S=Soil
SE=Sediment
SC=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WJ=Wipe
L=Liquid
V=Vegetation
X=Other

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT:

HANFORD

Purchase Order/Project:

DATE: 4/8/00

SAF# / SOW# / Release #:

B03-014

Laboratory SDG #:

0304L131

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-01-021 0.6°

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager:

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Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-014 H2151

DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00L30	001	SO	03LE0408	04/02/03	04/08/03	04/11/03
J00L32	002	SO	03LE0408	04/02/03	04/08/03	04/11/03

LAB QC:

SBLKRA	MB1	S	03LE0408	N/A	04/08/03	04/11/03
SBLKRA	MB1 BS	S	03LE0408	N/A	04/08/03	04/11/03
SBLKRA	MB1 BSD	S	03LE0408	N/A	04/08/03	04/11/03



Client: TNU-HANFORD B03-014
LVL #: 0304L131
SDG/SAF # H2151/B03-014

W.O. #: 11343-606-001-9999-00
Date Received: 04-08-2003


SEMIVOLATILE

Two (2) solid samples were collected on 04-02-2003.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 04-08-2003 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-11-2003.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. Both samples required dilutions due to the sample matrix. The reduced sample volume (15g instead of 30g) was used for the preparation due to insufficient sample volume. A copy of the Sample Discrepancy Report (SDR) has been enclosed. The forms do not reflect the correct dilution factors due to programming limitations. A copy of the Sample Extraction Record has been enclosed.
5. All obtainable surrogate recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. Matrix spike analyses were not performed due to insufficient sample volume.
8. The method blank contained the target compound 4-Chloro-3-Methylphenol at a level less than the CRQL.
9. Internal standard area criteria were not met for sample J00L32; however, the GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly.
10. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


J. Michael Taylor
President
Lionville Laboratory Incorporated

04-16-03
Date

son\group\data\bnatnu-hanford-0304-131.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

GLOSSARY

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

mmz\10-94\gloss.bna



cf

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP - Missed Peak: manually added peak not found by automatic quan program.
- PA - Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0304L131

Client: **TNUHANFORD B03-014 H2151**

Work Order: 11343606001

Page: 1a

Cust ID:		J00L30		J00L32		SBLKRA		SBLKRA BS		SBLKRA BSD	
Sample	RFW#:	001		002		03LE0408-MB1		03LE0408-MB1		03LE0408-MB1	
Information	Matrix:	SOLID		SOLID		SOIL		SOIL		SOIL	
	D.F.:	400		200		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
	Nitrobenzene-d5	D	%	D	%	94	%	67	%	77	%
Surrogate	2-Fluorobiphenyl	D	%	D	%	101	%	69	%	77	%
Recovery	Terphenyl-d14	D	%	D	%	117	%	87	%	99	%
	Phenol-d5	D	%	D	%	88	%	66	%	73	%
	2-Fluorophenol	D	%	D	%	89	%	65	%	72	%
	2,4,6-Tribromophenol	D	%	D	%	92	%	69	%	79	%
=====f1=====f1=====f1=====f1=====f1=====f1=====											
Phenol		330000	U	160000	U	330	U	58	%	69	%
bis(2-Chloroethyl) ether		330000	U	160000	U	330	U	330	U	330	U
2-Chlorophenol		330000	U	160000	U	330	U	59	%	70	%
1,3-Dichlorobenzene		330000	U	160000	U	330	U	330	U	330	U
1,4-Dichlorobenzene		330000	U	160000	U	330	U	58	%	67	%
1,2-Dichlorobenzene		330000	U	160000	U	330	U	330	U	330	U
2-Methylphenol		330000	U	160000	U	330	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		330000	U	160000	U	330	U	330	U	330	U
3- and/or 4-Methylphenol		330000	U	160000	U	330	U	330	U	330	U
N-Nitroso-di-n-propylamine		330000	U	160000	U	330	U	52	%	62	%
Hexachloroethane		330000	U	160000	U	330	U	330	U	330	U
Nitrobenzene		330000	U	160000	U	330	U	330	U	330	U
Isophorone		330000	U	160000	U	330	U	330	U	330	U
2-Nitrophenol		330000	U	160000	U	330	U	330	U	330	U
2,4-Dimethylphenol		330000	U	160000	U	330	U	330	U	330	U
bis(2-Chloroethoxy) methane		330000	U	160000	U	330	U	330	U	330	U
2,4-Dichlorophenol		330000	U	160000	U	330	U	330	U	330	U
1,2,4-Trichlorobenzene		330000	U	160000	U	330	U	60	%	71	%
Naphthalene		330000	U	160000	U	330	U	330	U	330	U
4-Chloroaniline		330000	U	160000	U	330	U	330	U	330	U
Hexachlorobutadiene		330000	U	160000	U	330	U	330	U	330	U
4-Chloro-3-methylphenol		330000	U	160000	U	24	J	62	%	77	%
2-Methylnaphthalene		330000	U	160000	U	330	U	330	U	330	U
Hexachlorocyclopentadiene		330000	U	160000	U	330	U	330	U	330	U
2,4,6-Trichlorophenol		330000	U	160000	U	330	U	330	U	330	U
2,4,5-Trichlorophenol		820000	U	400000	U	840	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	J00L30	J00L32	SBLKRA	SBLKRA BS	SBLKRA BSD
RFW#:	001	002	03LE0408-MB1	03LE0408-MB1	03LE0408-MB1
2-Chloronaphthalene	330000 U	160000 U	330 U	330 U	330 U
2-Nitroaniline	820000 U	400000 U	840 U	840 U	840 U
Dimethylphthalate	330000 U	160000 U	330 U	330 U	330 U
Acenaphthylene	330000 U	160000 U	330 U	330 U	330 U
2,6-Dinitrotoluene	330000 U	160000 U	330 U	330 U	330 U
3-Nitroaniline	820000 U	400000 U	840 U	840 U	840 U
Acenaphthene	330000 U	160000 U	330 U	60 %	71 %
2,4-Dinitrophenol	820000 U	400000 U	840 U	840 U	840 U
4-Nitrophenol	820000 U	400000 U	840 U	73 %	92 %
Dibenzofuran	330000 U	160000 U	330 U	330 U	330 U
2,4-Dinitrotoluene	330000 U	160000 U	330 U	70 %	84 %
Diethylphthalate	330000 U	160000 U	330 U	330 U	330 U
4-Chlorophenyl-phenylether	330000 U	160000 U	330 U	330 U	330 U
Fluorene	330000 U	160000 U	330 U	330 U	330 U
4-Nitroaniline	820000 U	400000 U	840 U	840 U	840 U
4,6-Dinitro-2-methylphenol	820000 U	400000 U	840 U	840 U	840 U
N-Nitrosodiphenylamine (1)	330000 U	160000 U	330 U	330 U	330 U
4-Bromophenyl-phenylether	330000 U	160000 U	330 U	330 U	330 U
Hexachlorobenzene	330000 U	160000 U	330 U	330 U	330 U
Pentachlorophenol	820000 U	400000 U	840 U	72 %	88 %
Phenanthrene	330000 U	160000 U	330 U	330 U	330 U
Anthracene	330000 U	160000 U	330 U	330 U	330 U
Carbazole	330000 U	160000 U	330 U	330 U	330 U
Di-n-butylphthalate	330000 U	160000 U	330 U	330 U	330 U
Fluoranthene	330000 U	160000 U	330 U	330 U	330 U
Pyrene	330000 U	8500 J	330 U	72 %	89 %
Butylbenzylphthalate	330000 U	160000 U	330 U	330 U	330 U
3,3'-Dichlorobenzidine	330000 U	160000 U	330 U	330 U	330 U
Benzo(a)anthracene	330000 U	160000 U	330 U	330 U	330 U
Chrysene	330000 U	12000 J	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	330000 U	160000 U	330 U	330 U	250 J
Di-n-octyl phthalate	330000 U	160000 U	330 U	330 U	330 U
Benzo(b)fluoranthene	330000 U	160000 U	330 U	330 U	330 U
Benzo(k)fluoranthene	330000 U	160000 U	330 U	330 U	330 U
Benzo(a)pyrene	330000 U	160000 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	330000 U	160000 U	330 U	330 U	330 U
Dibenz(a,h)anthracene	330000 U	160000 U	330 U	330 U	330 U
Benzo(g,h,i)perylene	330000 U	160000 U	330 U	330 U	330 U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00L30

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-014 H2151

Matrix: (soil/water) SOLID

Lab Sample ID: 0304L131-001

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: C041106

Level: (low/med) LOW

Date Received: 04/08/03

% Moisture: 19 decanted: (Y/N)

Date Extracted: 04/08/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 04/11/03

Injection Volume: 2.0 (uL)

Dilution Factor: 400

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 2

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	22 - 48 MINUTES			
2.	UNRESOLVED HYDROCARBONS			
3.	SILOXANE	7.637	200000	JB
4.	SILOXANE	10.886	200000	J

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00L32

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-014 H2151

Matrix: (soil/water) SOLID

Lab Sample ID: 0304L131-002

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: C041107

Level: (low/med) LOW

Date Received: 04/08/03

% Moisture: 17 decanted: (Y/N)

Date Extracted: 04/08/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 04/11/03

Injection Volume: 2.0 (uL)

Dilution Factor: 200

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 2

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	20 - 48 MINUTES			
2.	UNRESOLVED HYDROCARBONS			
3.	SILOXANE	7.627	60000	JB
4.	ALDOL CONDENSATE	8.328	60000	JAB

9

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

SBLKRA

Client: TNUHANFORD B03-014 H2151

Matrix: (soil/water) SOIL

Lab Sample ID: 03LE0408-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C041103

Level: (low/med) LOW

Date Received: 04/08/03

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 04/08/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 04/11/03

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	7.618	200	J
2.	ALDOL CONDENSATE	7.844	200	JA
3.	ALDOL CONDENSATE	8.355	10000	JA
4. 79-34-5	1,1,2,2-TETRACHLOROETHANE	9.862	100	JN
5.	UNKNOWN	19.227	200	J

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT:

HANFORD

Purchase Order/Project:

DATE: 4/8/03

SAF# / SOW# / Release #:

B03-014

Laboratory SDG #:

03042131

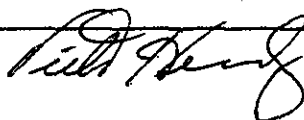
NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvlJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-01-021 0.6°

Laboratory Sample Custodian:



Laboratory Project Manager:

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SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 04/08/03

Extraction Batch No: 03LE0408

Analyst: MF

Method: SONC

Test: 0625

Cleanup Date:

Analyst:

Client: TNU-HANFORD B03-014

LIMS Report Date: 04/11/03

Solvent: DCM/ACETONE

Adsorbent:

Sample No:	Client Name Client ID	pH	Initial Surr. WT/VOL	Spike Mult.	Final Mult.	Final VOL	Final Split VOL	GPC Mult.	% Y/N Solid	C/D FACTOR
0304L131-	TNU-HANFORD B03-014									
001 H	J00L30	7	15.0	1.0		20		0.5	N	81.03 822.7
002 H	J00L32	7	15.0	1.0		10		0.5	N	82.90 402.1
03LE0408-MB1 H		7	30.0	1.0		1.0		0.5	N	100.00 16.7
03LE0408-MB1 HS		7	30.0	1.0	1.0	1.0		0.5	N	100.00 16.7
03LE0408-MB1 HT		7	30.0	1.0	1.0	1.0		0.5	N	100.00 16.7

Comments:

Surrogate: 500 UL ESU BNA 89914002 @100-150 UG/ML

Spike: 500 UL EMS BNA 89912202 @100-150 UG/ML

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
update for % Solids	JA Dakey	11-Apr-03 10:00			

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 03EX013

Initiator: Bernard Foley
Date: 4/8/03
Client: TW

Batch: 030416131
Samples: 12
Method: SW846/MCAWW/CLP/

Parameter: BNA/QCB
Matrix: Solid
Prep Batch: _____

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☒ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Client only sent a total of 30 grams in each jar.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description:

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

Extract for both tests using 15 grams

4. Project Manager Instructions...signature/date:

☒ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
Date/Person _____
☐ Add
☐ Cancel

5. Final Action...signature/date:

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☐ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
☒ Initiator
☒ Lab General Manager: M. Taylor
☒ Project Mgr: Stone/Johnson/Haslett
☒ Technical Mgr: Wesson/Daniels
☒ QA (file)
☐ Data Management: Feldman
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
☐ Metals: Beegle
☐ Inorganic: Perrone
☒ GC/LO: Kiger
☒ MS: Rychlak/Layman
☐ Log-in: Melnic
☐ Admin: Soos
☐ Other: _____



Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B03-014 H2151

DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00L30	001	SO	03LE0409	04/02/03	04/08/03	04/10/03
J00L32	002	SO	03LE0409	04/02/03	04/08/03	04/10/03

LAB QC:

PBLKQI	MB1	S	03LE0409	N/A	04/08/03	04/10/03
PBLKQI	MB1 BS	S	03LE0409	N/A	04/08/03	04/10/03
PBLKQI	MB1 BSD	S	03LE0409	N/A	04/08/03	04/10/03

9/4/03



Analytical Report

Client: TNU-HANFORD B03-014
LVL #: 0304L131
SDG/SAF #: H2151/B03-014

W.O. #: 11343-606-001-9999-00
Date Received: 04-08-03

PCB

The set of samples consisted of two (2) solid samples collected on 04-02-03.

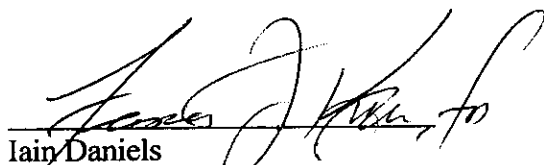
The samples and their associated QC samples were extracted on 04-08-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 04-10-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All samples and their associated QC samples received a Sulfuric Acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. Due to insufficient sample volume, matrix spike QC could not be performed on any samples in this data set. However, blank spike QC were performed with these samples to demonstrate that systems were in control. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. Both samples required 5-fold instrument dilutions due to the high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.
9. A reduced sample volume (15g instead of 30g) was used for the preparation due to insufficient sample volume. A copy of the Sample Discrepancy Report (SDR) has been enclosed. The forms do not reflect the correct dilution factors due to programming limitations. A copy of the Sample Extraction Record has been enclosed.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages (includes 3A and 3B).

10. All initial calibrations associated with this data set were within acceptance criteria.
11. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
12. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/16/03
Date

pefr:\group\data\pest\tnu hanford\04L-131.pcb

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 03EX013

Initiator: Bernard Foley
Date: 4/8/03
Client: TNN

Batch: 0304L131
Samples: 1,2
Method: SW846/MCAWW/CPL/

Parameter: BNA/PCB
Matrix: Solid
Prep Batch: _____

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☒ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Client only sent a total of 30 grams in each jar.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description:

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

Extract for both tests using 15 grams

4. Project Manager Instructions...signature/date:

☒ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
Date/Person _____
☐ Add
☐ Cancel

[Signature] 4/8/03

5. Final Action...signature/date:

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☒ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
☐ ☒ Initiator
☐ ☒ Lab General Manager: M. Taylor
☒ ☒ Project Mgr: Stone/Johnson/Haslett
☐ ☒ Technical Mgr: Wesson/Daniels
☐ ☒ QA (file)
☐ Data Management: Feldman
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
☐ Metals: Beegle
☐ Inorganic: Perrone
☒ ☒ GC/LC: Kiger
☒ ☒ MS: Rychlak/Layman
☐ Log-in: Melnic
☐ Admin: Soos
☐ Other: _____

SAMPLE EXTRACTION RECORD

Sheet no.: 1

3B

Extract. Date: 04/08/03

Extraction Batch No: 03LE0409

Analyst: MF

Method: ****

Test: OPCB

Cleanup Date: 04/09/03

Analyst: MF

Client: TNU-HANFORD B03-014

LIMS Report Date: 04/10/03

Solvent: DCM/ACETONE,HEXANE

Adsorbent: H2SO4

Sample No:	Client Name Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0304L131-	TNU-HANFORD B03-014										
001	J00L30	7	15.0	1.0		10		1.0	N	81.03	822.7
002	J00L32	7	15.0	1.0		10		1.0	N	82.90	804.2
03LE0409-MB1	PBLKQI	7	30.0	1.0		10		1.0	N	100.00	333.3
03LE0409-MB1 -S	PBLKQI	7	30.0	1.0	1.0	10		1.0	N	100.00	333.3
03LE0409-MB1 -T	PBLKQI	7	30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:

Surrogate: 1.0 ML OLM PSURR 89912606

Spike: 250 UL AR1660 89912804

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
—	—	—	JN	4/10/03 1600	Reus in

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 036L106

Initiator: John Hawk
Date: 4/10/03
Client: TNU Amherst

Batch: 0304L131
Samples: matrix QC
Method: SW846/MCAWW/CLP/

Parameter: OP03
Matrix: SOIL
Prep Batch: 03LE0405

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

No matrix QC performed.

2. Known or Probable Causes(s)

Insufficient volume.

3. Discussion and Proposed Action

Other Description:

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

Blank spike & duplicate performed.
None.

4. Project Manager Instructions...signature/date: _____

☐ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☒ Include in Case Narrative
☐ Client Contacted:
Date/Person _____
☐ Add
☐ Cancel

5. Final Action...signature/date: _____

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☒ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
☒ Initiator
☒ Lab General Manager: M. Taylor
☒ Project Mgr: Stone/Johnson/Haslett
☒ Technical Mgr: Wesson/Daniels
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☐ Data Management: Feldman
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
☐ Metals: Beegle
☐ Inorganic: Perrone
☐ GC/LC: Kiger
☐ MS: Rychlak/Layman
☐ Log-in: Melnic
☐ Admin: Soos
☐ Other: _____



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP** = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.

Report Date: 04/10/03 17:12

RFW Batch Number: 0304L131

Client: TNU-HANFORD B03-014

Work Order: 11343606001 Page: 1

	Cust ID:	J00L30	J00L32	PBLKQI	PBLKQI BS	PBLKQI BSD
Sample Information	RFW#:	001	002	03LE0409-MB1	03LE0409-MB1	03LE0409-MB1
	Matrix:	SOLID	SOLID	SOIL	SOIL	SOIL
	D.F.:	5.00	5.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG

Surrogate:	Tetrachloro-m-xylene	75 %	55 %	85 %	85 %	85 %
	Decachlorobiphenyl	80 %	55 %	100 %	100 %	95 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Aroclor-1016		410 U	400 U	33 U	85 %	85 %
Aroclor-1221		820 U	800 U	67 U	67 U	67 U
Aroclor-1232		410 U	400 U	33 U	33 U	33 U
Aroclor-1242		410 U	400 U	33 U	33 U	33 U
Aroclor-1248		410 U	400 U	33 U	33 U	33 U
Aroclor-1254		410 U	400 U	33 U	33 U	33 U
Aroclor-1260		550	400 J	33 U	88 %	86 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

0304L 131

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LIONVILLE LABORATORY INC.

Client TNU-HANFORD SAF # B03-014				Refrigerator #		<div style="display: flex; justify-content: space-around;"> A B C </div>											
Est. Final Proj. Sampling Date				#/Type Container		<div style="display: flex; justify-content: space-around;"> Liquid Solid </div>											
Project # 11343-606-001-9999-00				Volume		<div style="display: flex; justify-content: space-around;"> Liquid Solid </div>											
Project Contact/Phone #				Preservatives													
Lionville Laboratory Project Manager 05				ANALYSES REQUESTED		<div style="display: flex; justify-content: space-between;"> <div> ORGANIC VOA BNA PCB Herb </div> <div> INORG Metal CN </div> </div>											
QC SPEC Del STD TAT 3 day				Date Rec'd 4-8-03 Date Due 4-11-03		<div style="display: flex; justify-content: space-between;"> <div> Matrix QC Chosen (✓) MS MSD </div> <div> Lionville Laboratory Use Only METO ITCLP REACTION </div> </div>											

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only											
			MS	MSD				0624H	0625H	OPCB	METO	ITCLP	REACTION						
S - Soil	001	T00L 30			SO	4/2/03	820	1	1	✓									
SE - Sediment	002	L 32			L	↓	↓	1	1	✓									
SO - Solid	003	J00L 30 tulp 5 001			L	*													
SL - Sludge	004	L 32 L 002			L	↓													
W - Water																			
O - Oil																			
A - Air																			
DS - Drum Solids																			
DL - Drum Liquids																			
L - EP/TCLP Leachate																			
WI - Wipe																			
X - Other																			
F - Fish																			

Special Instructions:

METO = As, Ba, Cd, Cr, Pb, Se

SAF # B03-014

Run Matrix QC

DATE/REVISIONS:

* 1. **See label on**

2. _____

3. _____

4. _____

5. _____

6. _____

Lionville Laboratory Use Only

Samples were:

1) Shipped ☒ or Hand Delivered _____

Airbill # **See label**

2) Ambient or Chilled

3) Received in Good Condition ☒ or N

4) Samples Properly Preserved ☒ or N

5) Received Within Holding Times ☒ or N

Tamper Resistant Seal was:

1) Present on Outer Package ☒ or N

2) Unbroken on Outer Package ☒ or N

3) Present on Sample ☒ or N

4) Unbroken on Sample ☒ or N

COC Record Present Upon Sample Rec't ☒ or N

Cooler Temp. **0.6** °C

Relinquished by **RF**

Received by **RF**

Date **4/8/03**

Time **1005**

Relinquished by **COMPOSITE WASTE**

Received by **ORIGINAL REWRITTEN**

Date _____

Time _____

Discrepancies Between Samples Labels and COC Record? Y or N ☒

NOTES: **79074524 4706**

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							
Collector <u>Fahibera</u>		Company Contact Rikki Thoren		Telephone No. 521-8003		Project Coordinator KESSNER, JH		Price Code 9A	
Project Designation 118-C-4 Horizontal Rod Cave, Waste Characterization Samp		Sampling Location 118-C-4 Horizontal Rod Cave		SAF No. B03-014		Air Quality <input type="checkbox"/>		Data Turnaround business D	
Ice Chest No. <u>ERC-01-021</u>		Field Logbook No. <u>EL 1517-4</u>		COA R118CD200C		Method of Shipment Fed Ex			
Shipped To TMA/RECRA		Offsite Property No. <u>A030179</u>				Bill of Lading/Air Bill No. <u>02E 087C</u>			
POSSIBLE SAMPLE HAZARDS/REMARKS <u>Potentially Radioactive</u> <u>tie to J00L31</u> <u>Special Handling and/or Storage</u> <u>COOL 4C</u>			Preservation	Spot 4C <u>B</u>	Cool 4C <u>A</u>	None <u>C</u>			
			Type of Container	aG	aG	aG			
			No. of Container(s)	1	1	1			
			Volume	60mL	60mL	<u>60mL</u> <u>4-2-03</u> <u>120mL</u>			
SAMPLE ANALYSIS			PCBs - 8082; Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (1) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time						
J00L30	OTHER SOLID	4-2-03	0820	X	X	X			
J00L32	OTHER SOLID	4-2-03	0820	X	X	X			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From <u>IR-fahibera</u>		Date/Time <u>1000</u>		Received By/Stored In <u>3A 3728</u>		Date/Time <u>4-2-03</u>			
Relinquished By/Removed From <u>REF 3A 3728</u>		Date/Time <u>4703 1030</u>		Received By/Stored In <u>NOBLE</u>		Date/Time <u>4703 1030</u>			
Relinquished By/Removed From <u>SJOALS</u>		Date/Time <u>4703 1030</u>		Received By/Stored In <u>FED EX</u>		Date/Time			
Relinquished By/Removed From <u>FED EX</u>		Date/Time <u>4/8/03 1005</u>		Received By/Stored In <u>[Signature]</u>		Date/Time <u>1005</u>			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: *HANFORD*

Purchase Order/Project:

DATE: 4/8/00

SAF# / SOW# / Release #: *B03-014*

Laboratory SDG #:

0304L131

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
|--|---|-------------------------------------|-------------------------------------|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler # / temp (°C) and Comments:

ERC-01-021 0.6°

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-014 H2151



DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00L30						
TCLP	001	SO	03LTO045	04/02/03	04/08/03	04/09/03
SILVER, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
SILVER, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
SILVER, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
SILVER, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03
ARSENIC, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
ARSENIC, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
ARSENIC, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
ARSENIC, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03
BARIUM, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
BARIUM, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
BARIUM, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
BARIUM, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03
CADMIUM, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
CADMIUM, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
CADMIUM, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
CADMIUM, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03
CHROMIUM, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
CHROMIUM, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
CHROMIUM, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
CHROMIUM, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03
LEAD, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
LEAD, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
LEAD, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
LEAD, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03
SELENIUM, TOTAL	001	SO	03L0190	04/02/03	04/09/03	04/09/03
SELENIUM, TOTAL	001 REP	SO	03L0190	04/02/03	04/09/03	04/09/03
SELENIUM, TOTAL	001 MS	SO	03L0190	04/02/03	04/09/03	04/09/03
SELENIUM, TOTAL	001 MSD	SO	03L0190	04/02/03	04/09/03	04/09/03

J00L32

TCLP	002	SO	03LTO045	04/02/03	04/08/03	04/09/03
SILVER, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03
ARSENIC, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-014 H2151

DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03
CADMIUM, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03
CHROMIUM, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03
LEAD, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03
SELENIUM, TOTAL	002	SO	03L0190	04/02/03	04/09/03	04/09/03

J00L30

SILVER, TCLP LEACHAT	003	W	03L0191	04/09/03	04/09/03	04/09/03
SILVER, TCLP LEACHAT	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03
ARSENIC, TCLP LEACHA	003	W	03L0191	04/09/03	04/09/03	04/09/03
ARSENIC, TCLP LEACHA	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03
BARIUM, TCLP LEACHAT	003	W	03L0191	04/09/03	04/09/03	04/09/03
BARIUM, TCLP LEACHAT	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03
CADMIUM, TCLP LEACHA	003	W	03L0191	04/09/03	04/09/03	04/09/03
CADMIUM, TCLP LEACHA	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03
CHROMIUM, TCLP LEACH	003	W	03L0191	04/09/03	04/09/03	04/09/03
CHROMIUM, TCLP LEACH	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03
MERCURY, TCLP LEACHA	003	W	03C0081	04/09/03	04/10/03	04/11/03
MERCURY, TCLP LEACHA	003 REP	W	03C0081	04/09/03	04/10/03	04/11/03
MERCURY, TCLP LEACHA	003 MS	W	03C0081	04/09/03	04/10/03	04/11/03
LEAD, TCLP LEACHATE	003	W	03L0191	04/09/03	04/09/03	04/09/03
LEAD, TCLP LEACHATE	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03
SELENIUM, TCLP LEACH	003	W	03L0191	04/09/03	04/09/03	04/09/03
SELENIUM, TCLP LEACH	003 REP	W	03L0191	04/09/03	04/09/03	04/09/03

J00L32

SILVER, TCLP LEACHAT	004	W	03L0191	04/09/03	04/09/03	04/09/03
SILVER, TCLP LEACHAT	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03
ARSENIC, TCLP LEACHA	004	W	03L0191	04/09/03	04/09/03	04/09/03
ARSENIC, TCLP LEACHA	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03
BARIUM, TCLP LEACHAT	004	W	03L0191	04/09/03	04/09/03	04/09/03
BARIUM, TCLP LEACHAT	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03
CADMIUM, TCLP LEACHA	004	W	03L0191	04/09/03	04/09/03	04/09/03
CADMIUM, TCLP LEACHA	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03
CHROMIUM, TCLP LEACH	004	W	03L0191	04/09/03	04/09/03	04/09/03
CHROMIUM, TCLP LEACH	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-014 H2151

DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TCLP LEACHA	004	W	03C0081	04/09/03	04/10/03	04/11/03
LEAD, TCLP LEACHATE	004	W	03L0191	04/09/03	04/09/03	04/09/03
LEAD, TCLP LEACHATE	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03
SELENIUM, TCLP LEACH	004	W	03L0191	04/09/03	04/09/03	04/09/03
SELENIUM, TCLP LEACH	004 MS	W	03L0191	04/09/03	04/09/03	04/09/03

LAB QC:

SILVER LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
SILVER, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
ARSENIC LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
ARSENIC, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
BARIUM LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
BARIUM, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
CADMIUM LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
CADMIUM, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
CHROMIUM LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
CHROMIUM, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
LEAD LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
LEAD, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
SELENIUM LABORATORY	LC1 BS	S	03L0190	N/A	04/09/03	04/09/03
SELENIUM, TOTAL	MB1	S	03L0190	N/A	04/09/03	04/09/03
SILVER LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
SILVER, TCLP LEACHAT	MB1	W	03L0191	N/A	04/09/03	04/09/03
SILVER, TCLP LEACHAT	MB2	W	03L0191	N/A	04/09/03	04/09/03
ARSENIC LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
ARSENIC, TCLP LEACHA	MB1	W	03L0191	N/A	04/09/03	04/09/03
ARSENIC, TCLP LEACHA	MB2	W	03L0191	N/A	04/09/03	04/09/03
BARIUM LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
BARIUM, TCLP LEACHAT	MB1	W	03L0191	N/A	04/09/03	04/09/03
BARIUM, TCLP LEACHAT	MB2	W	03L0191	N/A	04/09/03	04/09/03
CADMIUM LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
CADMIUM, TCLP LEACHA	MB1	W	03L0191	N/A	04/09/03	04/09/03
CADMIUM, TCLP LEACHA	MB2	W	03L0191	N/A	04/09/03	04/09/03
CHROMIUM LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
CHROMIUM, TCLP LEACH	MB1	W	03L0191	N/A	04/09/03	04/09/03
CHROMIUM, TCLP LEACH	MB2	W	03L0191	N/A	04/09/03	04/09/03
MERCURY LABORATORY	LC1 BS	W	03C0081	N/A	04/10/03	04/11/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-014 H2151

DATE RECEIVED: 04/08/03

LVL LOT # :0304L131

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	MB1	W	03C0081	N/A	04/10/03	04/11/03
MERCURY, TCLP LEACHA	MB2	W	03C0081	N/A	04/10/03	04/11/03
LEAD LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
LEAD, TCLP LEACHATE	MB1	W	03L0191	N/A	04/09/03	04/09/03
LEAD, TCLP LEACHATE	MB2	W	03L0191	N/A	04/09/03	04/09/03
SELENIUM LABORATORY	LC1 BS	W	03L0191	N/A	04/09/03	04/09/03
SELENIUM, TCLP LEACH	MB1	W	03L0191	N/A	04/09/03	04/09/03
SELENIUM, TCLP LEACH	MB2	W	03L0191	N/A	04/09/03	04/09/03



Analytical Report

Client: TNU-HANFORD B03-014
LVL#: 0304L131
SDG/SAF#: H2151/B03-014

W.O.#: 11343-606-001-9999-00
Date Received: 04-08-03

**** Revision ****

METALS CASE NARRATIVE

This narrative has been revised to include the addition of Silver results to samples J00L30 and J00L32.

1. This narrative covers the analyses of 2 solid samples and 2 TCLP leachate samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

The TCLP leachates were run and reported for ICP metals with 6 fold dilutions due to sample matrix.

3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 16 pages.

10. The matrix spike (MS) and matrix spike duplicate (MSD) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J00L30	Chromium	1100	101.6
	Lead	1100	102.3

12. The MSs and MSDs for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.
13. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
14. The TCLP extracts from samples J00L30 and J00L32 were selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.
15. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
16. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

jjw/m04-131r

04-23-03
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Lot#: 03041131

Leaching Procedure: 1310 ☒ 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A ☒ 3010A 3015 3020A ☒ 3050B 3051 200.7 SS17
Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Antimony	<u>6010B</u> <u>7041</u> ^s	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<input checked="" type="checkbox"/> <u>6010B</u> <u>7060A</u> ^s	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<input checked="" type="checkbox"/> <u>6010B</u>	<u>200.7</u>			<u>99</u>
Beryllium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Bismuth	<u>6010B</u> ¹	<u>200.7</u> ¹		<u>1620</u>	<u>99</u>
Boron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Cadmium	<input checked="" type="checkbox"/> <u>6010B</u> <u>7131A</u> ^s	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Chromium	<input checked="" type="checkbox"/> <u>6010B</u> <u>7191</u> ^s	<u>200.7</u> <u>218.2</u>			<u>SS17</u>
Cobalt	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Copper	<u>6010B</u> <u>7211</u> ^s	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Lead	<input checked="" type="checkbox"/> <u>6010B</u> <u>7421</u> ^s	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<u>6010B</u> <u>7430</u> ⁴	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Manganese	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Mercury	<input checked="" type="checkbox"/> <u>7470A</u> ^s <u>7471A</u> ^s	<u>245.1</u> ² <u>245.5</u> ²			<u>99</u>
Molybdenum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Nickel	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Potassium	<u>6010B</u> <u>7610</u> ⁴	<u>200.7</u> <u>258.1</u> ⁴			<u>99</u>
Rare Earths	<u>6010B</u> ¹	<u>200.7</u> ¹		<u>1620</u>	<u>99</u>
Selenium	<input checked="" type="checkbox"/> <u>6010B</u> <u>7740</u> ^s	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<u>6010B</u> ¹	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<u>6010B</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<input checked="" type="checkbox"/> <u>6010B</u> <u>7761</u> ^s	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<u>6010B</u> <u>7770</u> ⁴	<u>200.7</u> <u>273.1</u> ⁴			<u>99</u>
Strontium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Thallium	<u>6010B</u> <u>7841</u> ^s	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Titanium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Uranium	<u>6010B</u> ¹	<u>200.7</u> ¹		<u>1620</u>	<u>99</u>
Vanadium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Zinc	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Zirconium	<u>6010B</u> ¹	<u>200.7</u> ¹		<u>1620</u>	<u>99</u>

Other: _____

Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Flame AA.
4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/22/03

CLIENT: TNUHANFORD B03-014 H2151

LVL LOT #: 0304L131

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DILUTION
					LIMIT	FACTOR
-001	J00L30	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Arsenic, Total	1.3	MG/KG	0.43	1.0
		Barium, Total	23.7	MG/KG	0.01	1.0
		Cadmium, Total	0.14	MG/KG	0.05	1.0
		Chromium, Total	322	MG/KG	0.07	1.0
		Lead, Total	485	MG/KG	0.32	1.0
		Selenium, Total	0.44 u	MG/KG	0.44	1.0
-002	J00L32	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	1.3	MG/KG	0.41	1.0
		Barium, Total	28.1	MG/KG	0.01	1.0
		Cadmium, Total	0.17	MG/KG	0.05	1.0
		Chromium, Total	216	MG/KG	0.07	1.0
		Lead, Total	291	MG/KG	0.30	1.0
		Selenium, Total	0.42 u	MG/KG	0.42	1.0
-003	J00L30	Silver, TCLP Leachate	4.8 u	UG/L	4.8	6.0
		Arsenic, TCLP Leachate	21.0 u	UG/L	21.0	6.0
		Barium, TCLP Leachate	68.8	UG/L	0.60	6.0
		Cadmium, TCLP Leachate	2.4 u	UG/L	2.4	6.0
		Chromium, TCLP Leachate	72.2	UG/L	3.6	6.0
		Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
		Lead, TCLP Leachate	109	UG/L	15.6	6.0
		Selenium, TCLP Leachate	21.6 u	UG/L	21.6	6.0
-004	J00L32	Silver, TCLP Leachate	4.8 u	UG/L	4.8	6.0
		Arsenic, TCLP Leachate	21.0 u	UG/L	21.0	6.0
		Barium, TCLP Leachate	114	UG/L	0.60	6.0
		Cadmium, TCLP Leachate	2.4 u	UG/L	2.4	6.0
		Chromium, TCLP Leachate	102	UG/L	3.6	6.0
		Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
		Lead, TCLP Leachate	599	UG/L	15.6	6.0
		Selenium, TCLP Leachate	21.6 u	UG/L	21.6	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/22/03

CLIENT: TNUHANFORD B03-014 H2151

LVL LOT #: 0304L131

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DILUTION
					LIMIT	FACTOR
BLANK1	03L0190-MB1	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	0.35 u	MG/KG	0.35	1.0
		Barium, Total	0.07	MG/KG	0.01	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.16	MG/KG	0.06	1.0
		Lead, Total	0.26 u	MG/KG	0.26	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
BLANK1	03L0191-MB1	Silver, TCLP Leachate	0.80 u	UG/L	0.80	1.0
		Arsenic, TCLP Leachate	3.5 u	UG/L	3.5	1.0
		Barium, TCLP Leachate	0.40	UG/L	0.10	1.0
		Cadmium, TCLP Leachate	0.40 u	UG/L	0.40	1.0
		Chromium, TCLP Leachate	0.97	UG/L	0.60	1.0
		Lead, TCLP Leachate	2.6 u	UG/L	2.6	1.0
		Selenium, TCLP Leachate	3.6 u	UG/L	3.6	1.0
BLANK2	03L0191-MB2	Silver, TCLP Leachate	4.8 u	UG/L	4.8	6.0
		Arsenic, TCLP Leachate	21.0 u	UG/L	21.0	6.0
		Barium, TCLP Leachate	1.6	UG/L	0.60	6.0
		Cadmium, TCLP Leachate	2.4 u	UG/L	2.4	6.0
		Chromium, TCLP Leachate	3.6 u	UG/L	3.6	6.0
		Lead, TCLP Leachate	15.6 u	UG/L	15.6	6.0
		Selenium, TCLP Leachate	21.6 u	UG/L	21.6	6.0
BLANK1	03C0081-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	03C0081-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/22/03

CLIENT: TNUHANFORD B03-014 H2151

LVL LOT #: 0304L131

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED RESULT	INITIAL AMOUNT	SPIKED %RECOV	DILUTION FACTOR (SPK)
-----	-----	-----	-----	-----	-----	-----	-----
-001	J00L30	Silver, Total	5.7	0.1 u	5.9	96.6	1.0
		Silver, Total MSD	5.6	0.1 u	5.9	94.9	1.0
		Arsenic, Total	218	1.3	237	91.4	1.0
		Arsenic, Total MSD	220	1.3	235	92.9	1.0
		Barium, Total	245	23.7	237	93.3	1.0
		Barium, Total MSD	241	23.7	235	92.3	1.0
		Cadmium, Total	5.5	0.14	5.9	90.9	1.0
		Cadmium, Total MSD	5.6	0.14	5.9	92.5	1.0
		Chromium, Total	294	322	23.7	-120. *	1.0
		Chromium, Total MSD	313	322	23.5	-35. *	1.0
		Lead, Total	502	485	59.4	29.1*	1.0
		Lead, Total MSD	522	485	58.8	63.9*	1.0
		Selenium, Total	212	0.44u	237	89.5	1.0
		Selenium, Total MSD	214	0.44u	235	91.0	1.0
-003	J00L30	Mercury, TCLP Leachate	150	0.10u	200	74.9	50.0
-004	J00L32	Silver, TCLP Leachate	5030	4.8 u	5000	100.6	6.0
		Arsenic, TCLP Leachate	5140	21.0 u	5000	102.9	6.0
		Barium, TCLP Leachate	100000	114	100000	100.1	6.0
		Cadmium, TCLP Leachate	1040	2.4 u	1000	103.9	6.0
		Chromium, TCLP Leachat	5180	102	5000	101.5	6.0
		Lead, TCLP Leachate	5790	599	5000	103.9	6.0
		Selenium, TCLP Leachat	1060	21.6 u	1000	106.2	6.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 04/22/03

CLIENT: TNUHANFORD B03-014 H2151
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L131

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
-----	-----	-----	-----	-----	-----
-001	J00L30	Silver, Total	96.6	94.9	1.8
		Arsenic, Total	91.4	92.9	1.6
		Barium, Total	93.3	92.3	1.0
		Cadmium, Total	90.9	92.5	1.8
		Chromium, Total	-120.	-35. *	NC
		Lead, Total	29.1	63.9*	NC
		Selenium, Total	89.5	91.0	1.7

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/22/03

CLIENT: TNUHANFORD B03-014 H2151

LVL LOT #: 0304L131

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL	REPLICATE RPD		DILUTION
			RESULT			FACTOR (REP)
*****	*****	*****	*****	*****	*****	*****
-001REP	J00L30	Silver, Total	0.1 u	0.09u	NC	1.0
		Arsenic, Total	1.3	0.84	43.5	1.0
		Barium, Total	23.7	19.1	21.5	1.0
		Cadmium, Total	0.14	0.15	10.4	1.0
		Chromium, Total	322	326	1.4	1.0
		Lead, Total	485	484	0.19	1.0
		Selenium, Total	0.44u	0.42u	NC	1.0
-003REP	J00L30	Silver, TCLP Leachate	4.8 u	4.8 u	NC	6.0
		Arsenic, TCLP Leachate	21.0 u	21.0 u	NC	6.0
		Barium, TCLP Leachate	68.8	69.1	0.44	6.0
		Cadmium, TCLP Leachate	2.4 u	2.4 u	NC	6.0
		Chromium, TCLP Leachate	72.2	73.1	1.2	6.0
		Mercury, TCLP Leachate	0.10u	0.10u	NC	1.0
		Lead, TCLP Leachate	109	109	0.00	6.0
		Selenium, TCLP Leachate	21.6 u	21.6 u	NC	6.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/22/03

CLIENT: TNUHANFORD B03-014 H2151
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L131

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
-----	-----	-----	-----	-----	-----	-----
LCS1	03L0190-LC1	Silver, LCS	49.4	50.0	MG/KG	98.8
		Arsenic, LCS	963	1000	MG/KG	96.3
		Barium, LCS	492	500	MG/KG	98.5
		Cadmium, LCS	24.4	25.0	MG/KG	97.6
		Chromium, LCS	50.0	50.0	MG/KG	100
		Lead, LCS	244	250	MG/KG	97.4
		Selenium, LCS	941	1000	MG/KG	94.1
LCS1	03L0191-LC1	Silver, LCS	503	500	UG/L	100.6
		Arsenic, LCS	10100	10000	UG/L	100.7
		Barium, LCS	5050	5000	UG/L	101.0
		Cadmium, LCS	253	250	UG/L	101.4
		Chromium, LCS	513	500	UG/L	102.5
		Lead, LCS	2530	2500	UG/L	101.0
		Selenium, LCS	9930	10000	UG/L	99.3
LCS1	03C0081-LC1	Mercury, LCS	5.0	5.0	UG/L	99.2

0304L13i

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS[illegible]

мет① = As, Ba, Cd, Cr, Pb, Se

SAF # B03-014
Rem Matrix QC

DATE/REVISIONS:

7. See label on

4-16-03 2. Add Ag to MET ①

3. _____

4. _____

5. _____

6. _____

Lionville Laboratory Use Only

Samples were:
1) Shipped / or
Hand Delivered

Air Mail # 50150

2) Ambient or Chilled
3) Received in Good
Condition M or N

4) Samples Properly Preserved or Not

5) Received Within Holding Times

Tamper Resistant Seal was:
1) Present on Outer
Package Y or N

2) Unbroken on Outer
Package Y or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present
Upon Sample Rec't

Cooler O_2 or N

Relinquished by	Received by	Date	Time
<i>Far E</i>	<i>W. H. King</i>	4/8/03	1005

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL	
		REWRITTEN	

Discrepancies Between
Samples Labels and
COC Record? Y or **N**

7907 4524 4706

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT:

HANFORD

Purchase Order/Project:

DATE: 4/8/03

SAF# / SOW# / Release #: B03-014

Laboratory SDG #:

0304L131

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- | | | | | |
|--|---|--|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-01-021 0.6°

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager: